

PANICUM § CAPILLARIA IN NEW ENGLAND.

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EVER since the publication of Hitchcock & Chase's *North American Species of Panicum*¹ the writer has attempted in vain to reconcile the New England plants of the section *Capillaria* with the published treatment. Finally, finding that by Hitchcock & Chase's treatment all the eastern *P. barbipulvinatum* Nash had been thrust into *P. capillare* L., that much of the northwestern *P. capillare* had been forced into *P. barbipulvinatum*, and that the common indigenous species of river- and lake-shores of most of New England had been merged with the strikingly dissimilar *P. philadelphicum* Bernh., it seemed desirable to study these plants from a new standpoint.

In this study it has been found that the common New England plant which has been confused with *P. philadelphicum* is distinguished at once from *P. capillare* (including *P. barbipulvinatum*) and *P. philadelphicum* by having strictly glabrous pulvini (at the bases of the panicle-branches), in this character agreeing with the southern *P. Gattingeri* Nash; while *P. capillare* and *P. philadelphicum* have the pulvini obviously hispid.

The characters relied upon by Hitchcock & Chase to separate *P. barbipulvinatum* from *P. capillare* are

- “Spikelets 2 to 2.2, rarely 2.5 mm. long; blades not crowded toward the base.
 23. *P. capillare*.
 Spikelets 3 to 3.3, rarely only 2.5 mm. long; blades usually crowded
 toward the base.....24. *P. barbipulvinatum*.”

It will be noticed that the spikelet-length is not constant, and this becomes conspicuously the case when the series of specimens in the Gray Herbarium and the herbarium of the New England Botanical Club, examined by Hitchcock & Chase, is studied anew, for of the 9 sheets labeled by them “*P. capillare*,” 5 are exact matches for western sheets which they marked “*P. barbipulvinatum*.” Conversely, many of the western specimens marked by them “*P. barbipulvinatum*” are inseparable from eastern plants called “*P. capillare*.” Nor does the crowding of foliage at the base hold any better.

¹ Contrib. U. S. Nat. Herb. xv. (1910).

On the whole, typical *P. capillare* is distinguished by its usually purplish panicle, with the crowded branches included at base and strongly ascending until complete maturity when the branches become divaricately spreading; in *P. barbipulvinatum* the commonly less purple panicle is soon exerted and its branches quickly divaricate. In *P. capillare* the spikelets are usually plumper, those of *P. barbipulvinatum* being more lance-attenuate, but this, like the habit and the length of the spikelet, is not constant. The most definite character seems to be in the length of the pedicels. In typical *P. capillare* the spikelets are mostly on long pedicels; in *P. barbipulvinatum* only the terminal spikelet of each branchlet is obviously pedicelled, the lateral spikelets being very short-pedicelled or even sessile. This character, however, like the others, is not constant, and *P. barbipulvinatum* seems to the writer, as it has to Rydberg, much better treated as a variety of *P. capillare* than as a distinct species. As a variety the plant should be called *P. capillare*, var. *occidentale* Rydberg, Contrib. U. S. Nat. Herb. iii. 186 (1895), Rydberg's type-number (1788) from Grant Co., Nebraska, being a close match for the type-number (*Rydberg & Bessey*, no. 3544) of *P. barbipulvinatum*.

As understood by the writer the New England species of *Panicum* § *Capillaria* may be distinguished as follows:

Pulvini hispid.

Spikelets all or nearly all long-pedicelled, 2-3 mm. long: panicle tardily exerted, its lower branches mostly included during anthesis.

P. capillare.

Spikelets sessile or only short-pedicelled along the ultimate branchlets: panicle exerted in anthesis.

Primary panicle (except in obviously starved individuals) 1.5-3 dm. long: spikelets 2.5-3.3 mm. long, attenuate at tip

P. capillare, var. *occidentale.*

Primary panicle 0.4-1.8 dm. long: spikelets 1.7-2 mm. long, merely acute or short-acuminate.....

P. philadelphicum.

Pulvini glabrous or merely ciliate at tip.....

P. Tuckermanni.

P. CAPILLARE L. Sp. Pl. i. 58 (1753); Hitchcock & Chase, Contrib. U. S. Nat. Herb. xv. 60 (1910), in large part. *P. capillare*, var. *agreste* Gattinger, Tenn. Fl. 94 (1887).—*P. capillare*, var. *vulgaris* Scribn. Grasses Tenn. pt. 2, 44 (1894).—Dry open soil, sandy fields, roadsides and waste places, common in southern New England, extending locally north to Windsor Co., Vermont, and Cumberland and Hancock Cos., Maine.

Var. *OCCIDENTALE* Rydberg, Contrib. U. S. Nat. Herb. iii. 186 (1895). *P. capillare brevifolium* Vasey in Rydberg & Shear, U. S. Dept. Agric. Bull. no. 5, 21 (1897). *P. barbipulvinatum* Nash in

Rydberg, Mem. N. Y. Bot. Gard. i. 21 (1900); Hitchcock & Chase, l. c. 62 (1910), in large part.—Prince Edward Island and Quebec to British Columbia, southward to southern New England, Michigan, Missouri, etc.; a common plant of waste lands, roadsides, and railroad banks in northern New England and eastern Canada. Probably naturalized from the West.

P. PHILADELPHICUM Bernh. in Trin. Gram. Pan. 216 (1826), published as a variety of *P. capillare* but with a binomial, validated by Nees, Agrost. Bras. 198 (1829); Hitchcock & Chase, l. c. 58 in part (1910). *P. capillare* β . *sylvaticum* Torr. Fl. No. and Mid. U. S. 149 (1824). *P. porphyrium* Trin. ex Nees, l. c. as synonym (1829). *P. torreyi* Fourn. in Hemsl. Biol. Centr. Am. Bot. iii. 497 (1885) and Fourn. Mex. Pl. ii. 28 (1886) as to synonym only. *P. capillare*, var. *minimum* Engelm. in Gattinger, l. c. (1887), perhaps also *P. capillare*, var. *minimum* Engelm. in Vasey Cat. Grasses U. S. 9 (1885). *P. minimum* (Engelm.) Scribn. & Merr. U. S. Dept. Agric. Div. Agrost. Circ. no. 27, 4 (1900).—A southern species, known in New England only locally in CONNECTICUT: dry open woods, Franklin, September 12 and 26, 1911, *R. W. Woodward*.

P. Tuckermani, n. sp., annuum; culmis plerumque decumbentibus numerosis furcatisque rare adscendentibus vel erectis paucis vel solitariis simplicibusque 0.3–7 dm. longis papilloso-hispidis foliosis; vaginibus papilloso-hispidis, laminis 0.2–2.5 dm. longis 0.1–1 cm. latis longe acuminatis laxe adscendentibus plus minusve hispidis; paniculis plerumque numerosis primariis exsertis late ovoideis 0.2–2 dm. longis, ramibus laxe divergentibus vel deinde subreflexis, ramulis spicato-racemosis spiculis 2–7 breviter pedicellatis vel subsessilibus, pulvinis coriaceis glabris; spiculis ovoideis breviter acuminatis 1.5–2 mm. longis 0.6–0.7 mm. latis, gluma inferiore deltoideo-suborbicularibus breviter acuminatis 0.6–0.9 mm. longis, superiore lemmatibusque sterilibus aequantibus 5-nerviis fructibus paullo superantibus.

Annual; culms usually decumbent and very numerous and forking, sometimes ascending or erect and few or solitary and simple, 0.3–7 dm. long, papillose-hispid, leafy throughout: sheaths papillose-hispid; blades 0.2–2.5 dm. long, 0.1–1 cm. broad, long-acuminate, loosely ascending, more or less hispid on both surfaces: panicles usually numerous, the primary one exserted, broadly ovoid, 0.2–2 dm. long, its branches loosely divergent or finally almost reflexed; the branchlets spicate-racemose, with 2–7 short-pedicelled or sessile spikelets; pulvini coriaceous, glabrous: spikelets ovoid, short-acuminate, 1.5–2 mm. long, 0.6–0.7 mm. broad; 1st glume deltoid-suborbicular, short-acuminate, 0.6–0.9 mm. long; 2d glume and sterile lemma equal, 5-nerved, barely exceeding the fruit.—Sandy and gravelly shores or open soils, Quebec and northern Maine to Connecticut and Wisconsin. QUEBEC: damp magnesian gravel and mud about the asbestos quar-

ries, Black Lake, August 26, 1915, *Fernald & Jackson*, no. 11,998. MAINE: gravelly shore of St. John River, Fort Kent, September 21, 1899, *Fernald*; wet sandy shore of Aroostook River, Masardis, September 8, 1898, *Fernald*; river-beach, Mattawamkeag River, Mattawamkeag, September 14, 1898, *Fernald*, no. 2,802; alluvial woods by the Penobscot, Pea Cove, Oldtown, July 27, 1916, *Fernald & Long*, no. 12,472; sandy shore of the Penobscot, Upper Stillwater, September 18, 1899, *Fernald*; sandy soil, Orono, July 30, 1889, *Fernald*; gravelly shore, Orono, September 1, 1893, *Fernald*; exsiccated clay, Orono, August 18, 1908, *Fernald* in Pl. Exsicc. Gray. no. 113; low thickets by the Penobscot River, Veazie, August 25, 1908, *Fernald*; Woodstock, 1887, *J. C. Parlin*; beach of Lambert Lake, September 1, 1908, *Fernald*; gravelly railroad bank, Pembroke, August 18, 1909, *Fernald*, no. 1,272; flats of Small Mill Pond east of Great Pond, Somesville, August 24, 1889, *E. L. Rand*; dry woods, South Deer Isle, August 18, 1914, *A. F. Hill*, no. 1,865; sandy and gravelly beach of Nequasset Lake, Woolwich, September 15, 1916, *Fernald & Long*, no. 12,476; sandy bank of the Androscoggin, Topsham, August 22, 1911, *C. H. Bissell*; Androscoggin Lake, North Leeds, 1894, *Kate Furbish*; South Poland, 1893, 1894, *Kate Furbish*; Harding's, Brunswick, 1899, *Kate Furbish*; The Park, Brunswick, June 26, 1913, *Kate Furbish*; wet clay of wood-path, Baldwin, August 28, 1916, *Fernald & Long*, no. 12,474; wet sandy bank of Saco River, Limington, August 28, 1916, *Fernald & Long*, no. 12,473; sandy beach, Ward Pond, Limington, August 29, 1916, *Fernald, Long & Norton*, no. 12,475; in Fletcher's Woods, Biddeford, September 20, 1901, *G. G. Kennedy*. NEW HAMPSHIRE: weed in garden, Shelburne, September 4, 1915, *W. Deane*; muddy bank of Clear Stream, Errol, September 5, 1917, *Fernald & Pease*, no. 16,968; near Ravine House, Randolph, September 20, 1904, *A. S. Pease*, no. 4,127; damp roadside, Jefferson Highlands, Jefferson, September 7, 1916, *A. S. Pease*, no. 16,873; dry roadside, Alstead, August 2, 1900, *Fernald*, no. 361. VERMONT: head of Lake Memphremagog, September, 1859, *Edw. Tuckerman* (TYPE in Gray Herb.). MASSACHUSETTS: muddy island, Foster's Pond, Andover, September 11, 1913, *A. S. Pease*, no. 2,605; edge of Johnson's Pond, Groveland, September 16, 1901, *A. S. Pease*, no. 2,056; near Spot Pond, Stoneham, October 9, 1852, *Wm. Boott*; sandy shore of Winter Pond, Winchester, September 22, 1908, *Fernald*, October 14, 1906, *Pease*, no. 9,837½; shore of Great Pond, Weymouth, September 9, 1908, *G. G. Kennedy*; ditch, Becket, September 22, 1904, *R. Hoffmann*. RHODE ISLAND: open gravelly soil, Lincoln, September 16, 1906, *Fernald*; damp sandy or peaty shore of Beach Pond, Exeter, September 3, 1914, *Collins & Fernald*, no. 11,243; sandy and peaty shore, southern end of Long Pond, South Kingstown, September 5, 1914, *Collins & Fernald*, no. 11,244. CONNECTICUT: sand flats, bed of Connecticut River, Hartford, September 25, 1909, *C. H.*

Bissell; wet, sandy pond-margin, Sharon, September 7, 1909, *C. A. Weatherby*, no. 2,713. NEW YORK: open alluvial and marshy flats between the city and Cayuga Lake west of the Inlet, Ithaca, August 13, 1913, *A. L. Palmer*, no. 79. WISCONSIN: St. Croix, "native," 1861, *T. J. Hale*.

Confused by Hitchcock & Chase with the more southern *P. philadelphicum* from which it differs in habit, more leafy culm, short-exserted panicles, glabrous pulvini, and spicate-racemose branchlets of the inflorescence. Much nearer *P. Gattingeri* Nash, which, however, has shorter and broader leaves, ellipsoid panicle, and more scattered, longer-pedicelated larger spikelets.

The type-sheet of *P. Tuckermani* was indicated by Tuckerman as a new species which he was afterward dissuaded from publishing. Tuckerman's herbarium name, *P. soboliferum*, has twice been published in synonymy, first by Scribner & Merrill as a synonym of *P. minimum* in RHODORA, iii. 106 (1901), later by Hitchcock & Chase as a synonym of *P. philadelphicum* in Contrib. U. S. Nat. Herb. xv. 58 (1910). In view of the fact that Tuckerman himself never published his herbarium-name and that it has twice been published by others in synonymy, it seems wisest to let it lapse and to use for the plant which Tuckerman at one time thought to be distinct a name which is open to no question and which at the same time associates the discoverer of the species definitely with the plant.

GRAY HERBARIUM.

SOME CONNECTICUT PLANTS.

R. W. WOODWARD.

ELODEA. At Old Lyme, last summer, the writer was surprised to see an *elodea* growing abundantly in the brackish waters of a tidal stream, as he had known *Elodea* only in fresh waters. It was a plant with linear, acute leaves, quite different in appearance from the plant with firmer, more crowded, oblong, or ovate-oblong, obtuse leaves, which comprises much of the aggregate which has hitherto passed as *E. canadensis*, and is now segregated as *Philotria canadensis* (Michx.) Britton. Fortunately, a number of staminate flowers were found